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Citation

Friedman, Benjamin M. 2011. Reconstructing Economics in Light of the 2007-? Financial Crisis. *Journal of Economic Education* 41(4): 391-397.

Published Version

doi:10.1080/00220485.2010.510397

Permanent link

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RECONSTRUCTING ECONOMICS IN LIGHT OF THE 2007–? FINANCIAL CRISIS

Benjamin M. Friedman

Keywords: financial crisis, teaching macroeconomics

JEL codes: A22, G01

How should the recent financial crisis, which has not only imposed such huge costs on the U.S. economy (and on U.S. taxpayers) but also contradicted so many central “truths” of modern economics, change how we teach our subject? What should we be telling our students, in introductory economics courses as well as in macroeconomics courses at all levels, that we are not now telling them? More generally, what lessons should we draw for how we as economists should think about the world we are trying to analyze, and about what economic policies might make it into a better place?

PROPOSITION #1: WE LIVE IN A MONETARY ECONOMY, AND IT MATTERS

Our first need is to recognize, much more explicitly than we now do, that we live in a monetary economy and it matters. At one level, of course, everyone knows this. But sometimes it seems as if education in our profession is aimed at persuading our students that what happens within the monetary and financial aspects of our economy has little or nothing to do with output, or employment, or ordinary people’s incomes. This idea is both wrong and subversive of our ability to understand phenomena like what we have just experienced.

Benjamin M. Friedman is William Joseph Maier Professor of Political Economy at Harvard University (e-mail: bfriedman@harvard.edu).

To recall, early in the 20th century economic thinking was dominated by the so-called classical dichotomy. Aggregate supply, which depended on technology and available factors of production, was supposedly what determined output and employment. Money was a veil; aggregate demand depended on money, but aggregate demand mattered only in so far as it determined prices. Questions about whether real aggregate supply and real aggregate demand would be equal were resolved by appeal to Say's Law.

By the middle of the 20th century, economists had come to understand that Say's Law applies only to a barter economy. We instead buy goods and services not in exchange for one another, but in exchange either for government-issued pieces of paper or for claims on those government-issued instruments. As a result, aggregate demand matters for the determination of output and employment, and monetary policy in turn matters as well because it affects aggregate demand.

More recently, the economics profession has seen the return of what amounts to the classical dichotomy under the rubric of "real business cycle theory." According to this mode of analysis, aggregate supply depends on preferences, endowments, and technologies, and it is once again seen as what determines output and employment. There is again no role for aggregate demand, or in turn monetary policy, to affect anything except prices and inflation.

By now most economists recognize that this story is a fiction; but we treat it nonetheless as a useful fiction—a benchmark, or base case, from which to begin our analysis. Unfortunately, it turns out that moving past that base case is difficult, both conceptually and technically, and as a result students often come away thinking that the base case, from which we were supposed to proceed onward but did not, is an adequate representation of the world in which we live for

purposes of most questions in which economists are interested. As the experience of the past few years has sharply reminded us, it is not.

There is also, I suspect, a role played by preferences here. It sometimes seems that many economists write, and teach, not about the world in which we live but rather the world in which they wished we lived—perhaps just because that alternative world is analytically easier to handle, or perhaps because they find the policy implications that would follow in that world more to their liking, or perhaps for yet other reasons. This path can be very seductive. Especially in the intellectual arena, few ideas offer more appeal than a model that is simple, elegant, and wrong.

PROPOSITION #2: WHAT MATTERS IS NOT MONEY BUT CREDIT

While we live in what we conventionally call a “monetary” economy, what actually matters for most of the purposes at issue here is actually not money, but credit. Indeed, with the benefit of hindsight the economics profession’s half-century-long fixation with money—how to measure it, how to control it, why people hold it, and so on—stands as a tragic distraction. Think, for example, about some of the statements we did not hear during the recent economic downturn:

- The money stock is falling.
- The Federal Reserve System is allowing the monetary base to contract.
- Households and firms are not spending because their holdings of real money balances are too small.
- The Federal Reserve is being too restrictive in supplying reserves to the banking system, and so the interest rate is too high.

The reason no one heard any of these statements during the 2007-9 crisis and downturn, or many others like them, is that they were demonstrably false. Instead, we saw a dramatic demonstration

that aggregate demand depends on the volume, the availability, and the price of credit, as well as on changes in the prices of non-money assets.

In some very simple models, of course, money and credit are the same thing, or at least they co-vary identically. Picture, for example, the simple textbook model of a banking system in which banks' assets consist of loans and reserves, the liability side of their balance sheet consists of deposits and banks' capital, and reserves and capital are each fixed (reserves by the central bank, capital by the past history of banks' profits and losses). In those circumstances, money and credit co-vary identically. For purposes of economic analysis there is no gain to distinguishing them.

But in the world in which we live, banks and other depository institutions have many ways of funding loans other than issuing money; their capital is not fixed (just ask your favorite Citibanker what happened to that bank's capital during the crisis); banks' ability to lend depends not only on their holding of reserves but also on their capital, and often the constraint that is binding is the one on capital; and lots of lending, including the "relationship lending" that is supposedly crucial to banks' special role in the economy, is done by institutions like G.E. Credit that are not depository institutions and that do not hold reserves at the central bank.

It is true that modeling all this is both difficult and complex. We would all like to find a model that is simple, elegant, and right. But that is no justification for continuing to equip our students with only the usual money-based models.

I suspect that this point will become all the more evident in coming years. In the United States, and in many other countries too, we are now engaged in a historic test of even such a basic question as whether very large-scale changes in the quantity of central bank liabilities matter for prices and inflation. During the course of the crisis, the Federal Reserve System, the

Euro-System of central banks, the Bank of England, and many of the other major central banks around the world massively increased the size of their balance sheets. The U.S. monetary base, for example, more than doubled, and the quantity of reserves provided to banks by the Federal Reserve increased roughly 25-fold.

Are these countries therefore about to experience a massive inflation, with their price level doubling? We will know soon enough. But given the huge magnitude of these changes in central bank liabilities, and especially in view of the dominant role that outlier observations play in any empirical technology based on least-squares estimation, the current episode is certain to dominate regression results in this field of inquiry for at least the next generation. Students who are equipped with only the usual money-based models will simply not understand how to interpret the results.

PROPOSITION #3: FINANCIAL INTERMEDIATION MATTERS TOO

The fact that most credit is advanced by financial institutions of one kind or other, rather than by individual economic agents acting as direct lenders, matters importantly too. What determines an institution's willingness and/or ability to lend? Like individuals, financial institutions exhibit profit motives, risk preferences, diversification objectives and balance sheet constraints. Unlike individuals, however, financial institutions are normally limited-liability corporations, often owned by widely dispersed shareholders, and they rely for their ability to lend mostly on funds that they have themselves borrowed. As a result, what they put at risk when they lend is what Louis Brandeis, in his 1914 book, famously called "other people's money." In short, the incentives that financial institutions face are quite distorted compared to what would motivate individual economic behavior.

Unlike individuals, financial institutions also face capital requirements, and they are therefore subject to the influence of accounting rules. For example, whether and to what extent banks and other lending institutions should apply mark-to-market accounting is one of the central issues in the current debate over what financial reforms to implement in the wake of the crisis. As the crisis demonstrated, in today's markets how to value distressed assets is often at the heart of the matter. The familiar "Bagehot Rule" for lender-of-last-resort policy—lend freely at a penalty rate against good collateral (or, as usually rendered, rescue illiquid institutions but not insolvent ones)—is useless when banks hold large amounts of assets for which there is no functioning market and therefore no observable price, and for which even the putative price is itself dependent on what actions policy takes. In such circumstances the distinction between illiquidity and insolvency is not operational.

In addition to capital requirements and accounting rules, institutions—again unlike individuals—face a large variety of other regulatory constraints. But they also enjoy regulatory enhancements that expand their lending capabilities instead of limiting them. Here the most obvious example is deposit insurance and other forms of liability guarantees. It is no coincidence that governments' single most massive response to the recent crisis, in the United States and elsewhere, was to expand guarantees of the liabilities issued by their banking systems. Without some appreciation for the role of institutions in the credit markets, how could a student of economics (or anyone else for that matter) begin to understand why any government would do this? Or why there is ongoing controversy over whether such guarantees constitute sound economic policy?

Finally, to be explicit about the implications of widely dispersed share ownership, most financial institutions, at least when scaled by volume of lending, are large and complex, and they

are professionally managed. Principal-agent problems therefore matter too. The incentives motivating the actual decision makers are not the same as the ones that would characterize even equity holders in a limited-liability setting. Again to cite the most obvious recent example, in 2008 Citigroup's shareholders lost more than 90 percent of their value, and had it not been for taxpayer assistance the loss would have been total. Yet the management chose to reward 44 individuals working at the bank with bonuses for that year in excess of \$5 million apiece. One suspects that many of the bank's shareowners would not have approved had they been allowed to have a say.

PROPOSITION #4: MINSKY WAS RIGHT; MARKETS AREN'T ALWAYS

“RATIONAL”

As Hyman Minsky pointed out long ago, from time to time we are reminded that our markets, and especially our financial markets, are not characterized by the level of rationality (in the now-standard economic sense) to which we all aspire. In Minsky's account, the form of irrationality that he labeled “euphoria” increases with the length of time elapsed since the last crisis. Lenders and investors, whether individual or institutional, increasingly take positions that expose them to risk – including risk of failure – if events do not conform to their optimistic expectations. Over time the system therefore becomes ever more vulnerable. Eventually some catalyst triggers a financial crisis, which in turn triggers a decline in real economic activity. In the latest episode the catalyst was a decline in house prices (which “euphoria”-based financial behavior had helped drive upward). But if house prices had not declined, the vulnerability would have continued to build and in time some other catalyst would have appeared.

By now the stories of even our largest and presumably most sophisticated financial institutions grossly underestimating the risks they were incurring in the run-up to the recent crisis,

and ignoring other risks altogether, are, all too familiar. (The most outstanding example is the failure of many of the models used to price mortgage-backed securities to allow for the possibility of a nationwide decline in house prices.) What we usually do not mention, however, is how fundamentally subversive this lack of rationality is for even our most basic notions of how our economy works. At the macroeconomic level, the prices set in speculative financial markets determine the share of our national product that we devote to fixed investment. At the microeconomic level, the prices determined in these markets steer the composition of that investment: new factories and machinery versus new houses and apartment buildings, expansion of computer firms versus opening new restaurants, new shopping centers versus refurbished airline fleets. In the latest episode, for several years running the United States was building, and American families were buying, more than 2 million houses per year, well above the norm for the country's rate of new family formation. Many of those houses now stand empty and deteriorating, and their presence on the market is continuing to depress house prices. Similarly, as a result of the 1990s boom in telecom stock prices, firms in that industry laid tens of millions of miles of fiber-optic cable that have never been lit, and for which there is no visible prospect of use.

To take another example of obvious importance, is the appropriate price of oil \$137 a barrel, as it was only eighteen months ago? Or \$28 a barrel, as it was just four years before that? Or \$75 a barrel, as it is today? Do we need more gasoline refineries, or less? What about the boom in Las Vegas casino construction? Not long ago the city had nearly \$40 billion in new resort projects under way—more than the entire annual gross private domestic investment of all but a few of the world's countries. Many of these projects have now been halted. Were investors right then? Or are they right now? In each of these cases, what is at issue is the determination of

the allocation of investment by prices that may not be—and often patently are not—the result of rational behavior.

**PROPOSITION #5: FRICTIONS ARE IMPORTANT; SO ARE DISTRIBUTION
EFFECTS**

Frictions, by which I mean the difficulties of shifting from one set of arrangements to another—whether those arrangements be personal, institutional, or governmental—are much more important than we normally let on in both our teaching and our research. So are distribution effects. Consider, for example, the most recent economic contraction. From the peak in the second quarter of 2008 to the trough in the second quarter of 2009, the U.S. GDP, adjusted for inflation, fell by 3.8 percent. Why was it such a tragedy, one might ask, for the United States to return to the real GDP that we had in early 2008? Was our standard of living so horribly depressed that the majority of Americans felt poverty stricken then? Of course not.

There are two reasons why this not-even 4 percent decline in our real GDP (only 2.4 percent on a year-over-year basis) has been so distressing, and why comparable declines always will be. First, we make arrangements in our daily lives—where we live, what car we drive, where we send our children to school, and the like—that are then very difficult to alter once they are in place. Moreover, as some of our more sophisticated models recognize, but our teaching mostly does not, the force of habit builds attachment to our current arrangements so that we would be reluctant to give them up even if we could do so frictionlessly. Indeed, under normal circumstances an acquired preference for what we already have – not just our houses and our cars, but our jobs and our friends and even our spouses – is part of what gives human life its stability.

Second, the impact of economic fluctuations on individuals is highly uneven, both on the way up and on the way down; and arranging for the winners to compensate the losers is just as difficult in macroeconomic settings as it is in the more familiar free trade context. Everyone knows, and many of us teach, the standard theorems showing that unrestricted trade makes the economy as a whole – presumably meaning the aggregate of individuals in it -- better off. We interpret this result to mean, for example, that the broad array of citizens who benefit from buying cheaper foreign-made cars could reimburse the unemployed U.S. auto workers for what they have lost and still come out ahead. But we also know that this compensation usually does not take place. The most recent recession did not simply cut everyone's income by an identical 3.8 percent. Most people continued to hold their jobs, and with no loss of pay. (The point should be obvious to this afternoon's audience, which presumably consists largely of tenured professors.) Others became unemployed. Some companies saw their sales decline only little, or not at all. Others went out of business. Those who did better than average could have compensated the more severe losers, and to a certain extent they did, via unemployment benefits, changes in taxes paid, and the like. But the net outcome remained far from even.

These ideas may seem obvious, but they are mostly missing in what we teach our students. The view of either firms or families as frictionless agents who consider all economic possibilities anew with no regard for past patterns of consumption or prior ways of doing business is a fiction that departs far from reality. So is our increasingly conventional image of an economy as consisting of millions of identical "representative agents." In the opposite direction, the idea that some change represents a Pareto improvement because the winners *could* compensate the losers and still come out ahead means nothing when in fact everyone knows that such compensation cannot, or at the least will not, take place.

CONCLUSION

James Tobin frequently observed that there are worse things than 3 percent inflation and from time to time we have them. We just did. The role of institutions and irrationality in a credit-based economy is an important part of why, from time to time, we have such things, and the unevenness of their consequences and the way frictions limit our adaptability to them are important reasons that they are so bad to have when we do. These features of the economy in which we live, as opposed to some simpler alternative that we can readily imagine, are also central to the question of how policy should respond to those events once they occur, and what policy might do to render them less likely. Incorporating these ideas in what we teach our students would better equip them to understand both the economy and economic policy.